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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,390	05/02/2006	Lit-Hsin Loo	DREX-1065US	5780

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EXAMINER	
CLOW, LORI A	

ART UNIT	PAPER NUMBER
1631	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,390	LOO ET AL.	
	Examiner	Art Unit	
	LORI A. CLOW	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-26,33-38,40,41,43-50,52 and 53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-26,33-38,40,41,43-50,52 and 53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicants' response, filed 17 November 2010, has been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claims 5-26, 33-38, 40, 41, 43-50, 52, and 53 are currently pending and under exam herein. Claims 1-4, 27-32, 39, 42, and 51 have been cancelled.

Claim Objections

Claim 21 is objected to because of the following informalities: Claim 21 recites, "The data analyzer according to any one of claims 4-20". Claim 4 has been cancelled. Therefore, claim 21 depends, in part, from a cancelled claim. Appropriate correction is required.

The outstanding objection to claim 50 has been withdrawn in view of the claim amendments.

Specification

The objection to the disclosure has been withdrawn in view of the amendments removing the hyperlinks.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 33-38, 40, 41, 43-50, 52, and 53 remain rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Making reference to the Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of Bilski v. Kappos (75 FR 43922 at 43927 (27 July 2010)), factors that weigh against the eligibility of a process claim include no express or inherent recitation of a machine or transformation. Further weighing against eligibility is a claim that is merely a statement of a general concept, such that it includes, for example, mathematical concepts such as algorithms, spatial relationships, geometry, etc…

In the instant case, claims 33-38, 40, 41, 43-50, 52, and 53 are not patent eligible under the Interim Guidance because the claims merely recite mathematical concepts of analyzing data by compressing data and removing noise and common characteristics of data without the recitation of a machine in which to perform such steps or without the recitation of an actual transformation of the data to a different state or thing. As such, the claims are non-statutory.

Applicant has amended the recited claims to include "a method for analyzing a set of indexed data from a collection of spectra obtained via mass spectrometry to compress a set of data". However, this does not constitute a transformation of data, as the data are not actively obtained in the method step. As a remedy, an amendment that included the recitation of, for example, "a method for analyzing a set of indexed data that includes obtaining a collection of spectra using mass spectrometry" would meet the transformation step, as it is a step that is actively performed in the method.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 22-26, 52, and 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 22-26, 52, and 53 have been amended to recite, "wherein the ensemble statistic is a statistic taken from across a set of spectra". It remains unclear as to what the ensemble statistic represents in the claim context. While Applicant has defined "ensemble statistic" in the arguments presented 17 November 2010, it remains unclear as to what the statistic represents. The statistic is taken across a set of spectra. However, it is unclear if the ensemble statistic is a statistic to represent intensity, time or some other parameter. Clarification through clearer claim language is requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-21, 33-38, 40, 41, and 43-50 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,064,770 (Scarth et al.; Published 16 May 2000), in view of 7,027,933 Paulse et al.; priority to November 16, 2000).

The instant claims are drawn to an analyzer and method for pattern classification to compress a set of data including steps of removing portions of the data, removing noise from the data, removing common characteristics from the data, and by normalizing the data.

In regard to claims 5-21, 33-38, 40, 41, and 43-50 Scarth et al. teach a method and system of identifying events in data by clustering data points into plural clusters according to data value patterns (column 3, lines 35-41; column 5, lines 1-21). Scarth et al. teach clustering data value patterns of greatest similarity into groups with the between group dissimilarity maximized and the within group dissimilarity minimized using a clustering algorithm (column 3, lines 42-61; removing data portions/characteristics). Statistical analyses are applied to the data in order to

associate statistical relevance to the clusters. Subsets of data can be selected (column 4, lines 6-31). Scarth et al. teach noise removal (column 4, lines 6-14). Scarth et al. teach data normalization (column 4, lines 36-38). Scarth et al. teach determination of standard deviation of data values with normalization of data (column 4, lines 6-51; column 6, lines 1-14). Scarth et al. teach data maximization (see above). Scarth et al teach comparison of normalization values to a baseline calculation (column 6, lines 15-22). Scarth et al. teach decreasing cardinality by forming subsets that excludes domains of non-interest (column 5, lines 12-19).

Scarth et al. do not specifically teach comparing indexed data to control data to evaluate common characteristics nor do Scarth et al. teach identification of noise using a threshold, as in claims 10, 14, 37, and 41. However, Paulse et al. teach the analysis of mass spectra using a classification model that can differentiate between classes of samples associated with samples of different biological statuses. The data are analyzed using a statistic that will classify by recursive partitioning (column 3, lines 13-22). Biological data may be obtained using spectra from a sample with known characteristics and the data are used for classification of unknown samples (column 4, beginning line 63 to column 5, line 33). Further, Paulse et al. teach the removal of noise before classification by applying various filters to the data which removes the high frequency noise. A baseline can then be calculated (column 10, lines 35-49).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to have used the mass spectra analysis systems of Paulse et al. with the identifying events in data by clustering data points into plural clusters according to data value patterns according to Scarth et al., as the invention of Paulse et al. is specifically drawn to the processing of mass spectrometric data. Further, Scarth et al. motivate one to do so because they teach that

any suitable classification method may be used with the embodiments of the invention and that the data sets may be used accordingly (column 15, lines 31-49).

Conclusion

No claims are allowed.

Claims 22-26, 52, and 53 appear to be free from the prior art. However, upon clarification of the 112, 2nd issues above, a new search will be performed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiries

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The Central Fax Center Number is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lori A. Clow, Ph.D., whose telephone number is (571) 272-0715. The examiner can normally be reached on Monday-Friday from 10 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on (571) 272-0720.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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January 11, 2011
/Lori A. Clow, Ph.D./
Primary Patent Examiner
Art Unit 1631